

and 13 to better clarify and define certain aspects of the present invention. Claims 1-2 and 4-13, including independent claim 1, now remain pending in the present application.

In the initial Office Action, independent claim 1 was rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,100,506 to Colelli, et al. and under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,924,073 to Chiba. Colelli, et al. is directed to a closed loop real-time hot plate surface temperature monitoring system that also includes a system for controlling the hot plate surface temperature across various zones thereof. (Col 2, lines 49-59). Chiba is directed to a method of controlling an apparatus for sequentially heat treating a series of substrates. (Col 1, lines 7-10).

However, Applicants respectfully submit that independent claim 1 contains at least one limitation that is not disclosed in either of the above-cited references. For example, as currently amended, independent claim 1 requires providing a gas to selectively control the temperature of at least one of a plurality of localized regions of a semiconductor wafer to minimize temperature deviation. Neither of the above-cited references disclose providing a gas in the manner set forth in claim 1. As such, Applicants respectfully submit that independent claim 1 patentably defines over the above-cited references.

In addition, in the initial Office Action, independent claim 1 was also rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,997,175 to

Champetier, et al. Champetier, et al. is generally directed to an apparatus for measuring the temperature of a semi-transparent radiating body. For example, the apparatus can include a first reflective device and a second reflective device that are contained within a chamber and positioned such that a radiating body can be placed between both. (Col 4, lines 42-49). The first and second reflective devices include areas of high reflectivity, which reflect thermal radiation at a selected wavelength that is being emitted by the radiating body. (Col 4, lines 45-48).

However, Applicants respectfully submit that the present claims patentably define over Champetier, et al. For example, Champetier, et al. does not expressly describe providing a gas to selectively control the temperature of at least one of a plurality of localized regions of a semiconductor wafer to minimize temperature deviation. As shown in Fig. 1 of Champetier, et al., for instance, a chamber 12 is provided that includes a gas inlet 18 and a gas outlet 20 for introducing a gas into the chamber and/or for maintaining the chamber within a preset pressure range. (Col 7, lines 34-40). However, Applicants note that the gas inlet 18 and gas outlet 20 do not provide selective control over the temperature of a localized region. Instead, the gas inlet 18 and gas outlet 20 simply provide a gas to the entire chamber, and not selectively to any particular region of the semiconductor wafer.

Thus, for at least the reasons indicated above, Applicants respectfully submit that the claims, as amended, patentably define over all of the prior art of record. In addition, the above-cited references were also cited in various combinations to reject

dependent claims 2 and 4-13. Applicants respectfully submit, however, that at least for the reasons indicated above relating to corresponding independent claim 1, claims 2 and 4-13 patentably define over the references cited. However, Applicants also note that the patentability of dependent claims 2 and 4-13 does not hinge on the patentability of independent claim 1. In particular, these claims possess features that are independently patentable, regardless of the patentability of claim 1.


Further, it is also believed that the claims, as now amended, patentably define over each of the references listed on the Information Disclosure Statement submitted herewith. In particular, it is believed that none of the references disclose or suggest a method as defined in independent claim 1, including the step of providing a gas to selectively control the temperature of at least one localized region of a semiconductor wafer to minimize temperature deviation of the localized region from a predetermined temperature.

In summary, Applicants respectfully submit that the current claims are patentably distinct over the prior art of record and meet all of the requirements of 35 U.S.C. §112. It is believed that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. Examiner Lee is invited and encouraged to telephone the undersigned, however, should any issues remain after consideration of this response.

Please charge any additional fees required by this Amendment to Deposit Account No. 04-1403.

Respectfully submitted,

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APPENDIX A

1. (Amended) A method for heat treating a semiconductor wafer, said method comprising the steps of:

placing a semiconductor wafer in a thermal processing chamber, said semiconductor wafer defining [at least one] a plurality of localized regions along a radial axis;

adjusting the temperature of said semiconductor wafer to a predetermined temperature according to a predetermined heat cycle, said predetermined heat cycle including a heating stage;

during at least one stage of said predetermined heat cycle, providing a gas to selectively control [controlling] the [localized] temperature of [said] at least one of said localized regions of said semiconductor wafer to minimize temperature deviation of said at least one localized region from said predetermined temperature.

4. (Amended) A method as defined in claim [3] 1, further comprising the step of controlling the temperature of said gas.

5. (Amended) A method as defined in claim [3] 1, further comprising the step of controlling the flow rate of said gas.

11. (Amended) A method as defined in claim 1, wherein said [localized] temperature of said at least one localized region is decreased during said heating stage of said predetermined heat cycle.

13. (Amended) A method as defined in claim 12, wherein said [localized]

temperature of said at least one localized region is increased during said cooling stage
of said predetermined heat cycle.